

PATENT APPLICATION

of

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CHAIR WITH BIGHT FORMED IN LEG

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## CHAIR WITH BIGHT FORMED IN LEG

This application claims priority as a continuation-in-part under 35 U.S.C. §120 to U.S. Application No. 29/178,579, filed March 28, 2003, which is hereby incorporated by reference herein.

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## BACKGROUND

The present disclosure relates to chairs. More particularly, the present disclosure relates to legs of chairs.

## 10 SUMMARY

According to the present disclosure, a chair comprises a leg. The leg is formed to include a bight and a channel. The bight extends longitudinally along the leg to strengthen the leg. The channel includes a pair of spaced-apart end edges extending longitudinally along the leg. The bight interconnects the end edges and protrudes outwardly therefrom.

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In some embodiments, the leg is tubular and relatively “flat” in that its width is larger than its depth. The leg includes a front side, a rear side, a laterally inner side, and a laterally outer side. The front and rear sides define the depth of the leg. The laterally inner and laterally outer sides define the width of the leg. The bight is formed in the front side when the leg is a front leg of the chair. The bight is formed in the rear side when the leg is a rear leg of the chair.

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Additional features of the present disclosure will become apparent to those skilled in the art upon consideration of the following detailed description exemplifying the best mode of the disclosure as presently perceived.

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## BRIEF DESCRIPTION OF THE DRAWINGS

The detailed description particularly refers to the accompanying figures in which:

Fig. 1 is a perspective view showing a chair including a foldable frame that is positioned in an unfolded position and includes a pair of tubular front legs and

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a pair of tubular rear legs and showing each front leg including a bight extending longitudinally along a front side of the front leg for strength thereof;

Fig. 2 is a rear perspective view of the chair of Fig. 1 showing each rear leg formed to include a bight extending longitudinally along a rear side of the rear leg for strength thereof;

Fig. 3 is a side elevation view showing the chair in the unfolded position;

Fig. 4 is a side elevation view showing the chair in a folded position;

Fig. 5 is a sectional view taken along lines 5-5 of Fig. 3 and showing a chair back mount surrounding a top portion of one of the front legs and formed to include a bight mating with the bight formed in the front leg;

Fig. 6 is a sectional view taken along lines 6-6 of Fig. 3 and showing a foot surrounding a bottom portion of one of the front legs and formed to include a bight mating with the bight formed in the front leg;

Fig. 7 is an exploded perspective view, with portions broken away, showing components of a leg pivot mount to support one of the rear legs for pivotable movement relative to one of the front legs;

Fig. 8 is a sectional view, taken along lines 8-8 of Fig. 3, showing components of a rear leg pivoter coupled to a seat and one of the rear legs to pivot the rear leg relative to one of the front legs upon pivotable movement of the seat;

Fig. 9 is a perspective view, with portions broken away, showing another chair back coupled to top portions of the front legs; and

Fig. 10 is a sectional view taken along lines 10-10 of Fig. 9 and showing a bight formed in the chair back mating with the bight formed in one of the front legs.

#### DETAILED DESCRIPTION

A chair 10 includes a pair of front legs 14 and a pair of rear legs 16, as shown, for example, in Figs. 1 and 2. Each leg 14, 16 is formed to include a bight 18 extending longitudinally along leg 14, 16 to strengthen leg 14, 16. Bights 18 thus provide means for strengthening legs 14, 16 and thereby promote overall stability of chair 10.

Legs 14, 16 are included in a foldable frame 12 shown, for example, in Figs. 1-4. Frame 12 includes front and rear leg units 20, 22 which are arranged for movement relative to one another between an unfolded position shown, for example, in Figs. 1-3 and a folded position shown, for example, in Fig. 4. Front leg unit 20 includes front legs 14. Rear leg unit 22 includes rear legs 16.

Front legs 14 are similar to one another in structure and function so that the description of one front leg 14 applies to the other front leg 14 as well. Rear legs 16 are similar to one another in structure and function so that the description of one rear leg 16 applies to the other rear leg 16 as well.

In the illustrated embodiment, front leg 14 is tubular and relatively “flat” in that it is wider than it is deep, as suggested in Figs. 5, 6, and 8. Front and rear sides 24, 26 of leg 14 define a depth 27 (e.g., about 5/8 inch or 1.59 cm) of leg 14. Laterally outer and laterally inner sides 28, 30 of leg 14 define a width 31 (e.g., about 1.5 inches or 3.81 cm) of leg 14. Width 27 of leg 14 is greater than depth 31 of leg 14. Leg 14 is relatively thin-walled and has a thickness 33 (e.g., about 1/16 inch or .16 cm). The material of leg 14 is, for example, metal such as steel.

Front side 24 of leg 14 is formed to include bight 18 extending longitudinally along leg 14, as shown, for example, in Figs. 1, 5, 6, and 8. Front side 24 is further formed to include a laterally inner portion 32 and a laterally outer portion 34, as shown, for example, in Figs. 5, 6, and 8. Inner and outer portions 32, 34 of leg 14 are co-planar in cross-section. Bight 18 of leg 14 is positioned therebetween. Inner portion 32 is generally straight in cross-section and extends from inner side 30 to bight 18. Outer portion 34 is generally straight in cross-section and extends from bight 18 to outer side 28. Bight 18 protrudes forwardly in relation to laterally inner portion 32 and laterally outer portion 34 and has a U-shaped cross-section. Bight 18 and leg 14 formed to include bight 18 are bowed along their lengths.

Rear side 26 of leg 14 is generally straight in cross-section and extends from laterally inner side 30 to laterally outer side 28 as shown, for example, in Figs. 5, 6, and 8. Rear side 26 is arranged to lie in spaced-apart relation to inner portion 32, bight 18, and outer portion 34, and laterally outer and inner sides 28, 30 to define an interior region 38.

Laterally inner and laterally outer sides 28, 30 of leg 14 extend between front and rear sides 24, 26 of leg 14, as shown, for example, in Figs. 5, 6, and 8. Laterally inner and laterally outer sides 28, 30 are curved in cross-section. In the illustrated embodiment, they are semi-circular in cross-section.

5               Rear side 26, laterally inner and laterally outer sides 28, 30, and laterally inner and laterally outer portions 32, 34 of front side 24 cooperate to provide a channel 39 of leg 14, as shown, for example, in Figs. 5-8. Each portion 32, 34 provides an end edge 41 of channel 39 extending longitudinally along leg 14. Edges 41 are spaced apart from one another to define a gap therebetween. Bight 18 of leg 14  
10               interconnects edges 41 and protrudes outwardly therefrom. In the illustrated embodiment, channel 39 of leg 14 is oblong and C-shaped.

                  In some embodiments, channel 39 of leg 14 includes a pair of U-shaped channel members (not shown). The U-shaped channel members are coupled to bight 18 on either side thereof. First ends of the U-shaped channel members  
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                  In the illustrated embodiment, rear leg 16 is tubular and relatively “flat” in that it is wider than it is deep, as suggested in Fig. 8. Front and rear sides 42, 40 of leg 16 define a depth 27 (e.g., about 5/8 inch or 1.59 cm) of leg 16. Laterally  
20               outer and laterally inner sides 28, 30 of leg 16 define a width 31 (e.g., about 1.5 inches or 3.81 cm) of leg 16. Width 27 of leg 16 is greater than depth 31 of leg 16. Leg 16 is relatively thin-walled and has a thickness 33 (e.g., about 1/16 inch or .16 cm). The material of leg 16 is, for example, metal such as steel.

                  Rear side 40 of leg 16 is formed to include bight 18 extending  
25               longitudinally along leg 16, as shown, for example, in Figs. 2 and 8. Rear side 40 is further formed to include a laterally inner portion 32 and a laterally outer portion 34, as suggested in Figs. 7 and 8. Inner and outer portions 32, 34 of leg 16 are co-planar in cross-section. Bight 18 of leg 16 is positioned therebetween. Inner portion 32 is generally straight in cross-section and extends from inner side 30 to bight 18. Outer  
30               portion 34 is generally straight in cross-section and extends from bight 18 to outer side 28. Bight 18 protrudes rearwardly in relation to laterally inner portion 32 and

laterally outer portion 34 and is U-shaped in cross-section. Bight 18 and leg 16 formed to include bight 18 are bowed along their lengths.

Front side 42 of leg 16 is generally straight in cross-section and extends from laterally inner side 30 to laterally outer side 28 as shown, for example, in Figs. 7 and 8. Front side 42 is arranged to lie in spaced-apart relation to inner portion 32, bight 18, and outer portion 34, and laterally outer and inner sides 28, 30 to define an interior region 38.

Front side 42, laterally inner and laterally outer sides 28, 30, and laterally inner and laterally outer portions 32, 34 of rear side 40 cooperate to provide a channel 39 of leg 16, as shown, for example, in Figs. 7 and 8. Each portion 32, 34 provides an end edge 41 of channel 39 extending longitudinally along leg 16. Edges 41 are spaced apart from one another to define a gap therebetween. Bight 18 of leg 16 interconnects edges 41 and protrudes outwardly therefrom. In the illustrated embodiment, channel 39 of leg 16 is oblong and C-shaped.

In some embodiments, channel 39 of leg 16 includes a pair of U-shaped channel members (not shown). The U-shaped channel members are coupled to bight 18 on either side thereof. First ends of the U-shaped channel members provide the edges 41 and are coupled to bight 18. Second ends of the U-shaped channel members are spaced apart from one another to define a gap therebetween.

Chair 10 includes a pair of leg pivot mounts 80 to mount rear leg unit 22 for pivotable movement relative to front leg unit 20 between the unfolded and folded positions, as shown, for example, in Figs. 1-4 and 7. Each leg pivot mount 80 includes a bracket 82 coupled to rear side 26 of a front leg 14, a pivot cap 84 coupled to a top end of a rear leg 16 by a fastener 86, and a leg pivot axle 87 coupling bracket 82 and pivot cap 84 to one another for pivotable movement of rear leg 16 relative to front leg 14. Pivot cap 84 extends into interior region 38 of rear leg 16 and is formed to include a bight 88 mating with a bight 18 formed in rear leg 16. Fastener 86 extends through laterally outer side 28 and inner side 30 and between bight 18 formed in rear side 40 of leg 16 and front side 42 of leg 16. Leg pivot axle 87 extends through an aperture 90 formed in pivot cap 84 and a pair of apertures 92 formed in bracket 82 to establish a leg pivot axis 94 about which rear leg 16 can pivot.

Chair 10 includes a rear leg pivoter 48 shown in Fig. 8 and configured to pivot rear leg 16 relative to front leg 14 upon pivotable movement of a seat 44 included in chair 10. Leg pivoter 48 includes a link 52, a first link pivot axle 54 coupled to link 52 and seat 44, a second link pivot axle 56 coupled to link 52 and rear leg 16, and a pivot stop 50 coupled to seat 44. Second link pivot axle 56 extends through laterally inner side 30 and laterally outer side 28 of leg 16 between bight 18 formed on rear side 40 of leg 16 and front side 42 of leg 16. Pivot stop 50 cooperates with a downwardly facing retention groove 51 shown in Fig. 4 and formed in link 52 to stop pivotable movement of seat 44 when frame 12 assumes the unfolded position.

A seat pivot axle 46 shown in Fig. 8 is coupled to seat 44 and a front leg 14 for pivotable movement of seat 44 relative to front leg 14. Seat axle 46 extends through laterally inner side 30 and laterally outer side 28 of front leg 14 and between bight 18 formed in front side 24 of leg 14 and rear side 26 of leg 14.

Chair 10 further includes a chair back 58 and a pair of chair back mounts 60, as shown, for example, in Figs. 1 and 2. Chair back mounts 60 are coupled to chair back 58 to support chair back 58 for pivotable movement. Each chair back mount 60 is coupled to a top portion 62 of a front leg 14 and is formed to include a bight 64 mating with bight 18 formed in front leg 14, as shown, for example, in Fig. 5.

Chair 10 further includes a foot 66 coupled to a bottom portion 68 of each leg 14, 16. Foot 66 is formed to include a bight 70 mating with bight 18 formed in each leg 14, 16.

In some embodiments, chair 10 may include a chair back 158, as shown, for example, in Fig. 9. Chair back 158 is coupled to first and second chair back mounts 72, 74. Chair back mounts 72, 74 are coupled to top portions 62 of front legs 14 by fasteners 78. Each chair back mount 72, 74 is formed to include a bight 76 mating with the bight 18 formed in front leg 14 as shown, for example, in Fig. 10. Each fastener 78 extends through bights 76 and 18 and rear side 26.